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**PRELIMINARY ASSESSMENT**

**FARGO TOWN GAS SITE**

**FARGO, NORTH DAKOTA**

**CERCLIS ID #NDD986271807**

Prepared For:

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
REGION VIII**

**CONTRACT NO. 68-W9-0025  
WORK ASSIGNMENT NUMBER: 27-8JZZ**

February 22, 1994



**MORRISON KNUDSEN CORPORATION**  
Environmental Services Group  
7100 East Belleview Avenue, Suite 300  
Englewood, Colorado 80111

# APPROVAL PAGE

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CONTRACT NO. 68-W9-0025  
WORK ASSIGNMENT NUMBER 27-8JZZ

Georgia Johnson  
MK TASK LEAD

2/25/94  
DATE

Mark Smith  
MK PRE-REMEDIAL MANAGER

2/25/94  
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## **TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>TITLE</u></b>	<b><u>PAGE</u></b>
1.0	INTRODUCTION	1
2.0	OBJECTIVES	1
3.0	SITE DESCRIPTION	1
3.1	Site Location	1
3.2	Operational History	1
3.3	Site Characteristics	3
3.3.1	Geography	3
3.3.2	Geology	3
3.3.3	Hydrogeology	4
3.3.4	Hydrology	5
3.3.5	Climate	6
4.1	Waste Characteristics	6
4.2	Air Migration Pathway	8
4.3	Ground Water Migration Pathway	8
4.4	Surface Water Migration Pathway	9
4.5	Soil Migration Pathway	9
5.0	SUMMARY	10

## **LIST OF FIGURES**

Figure 1	Site Location
Figure 2	4-mile Radius and 15-mile Downstream Segment Map
Figure 3	Historical Site Features

## **LIST OF TABLES**

Table 1	Ground Water Quality
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## **APPENDICES**

Appendix A	EPA Preliminary Assessment Form
Appendix B	PA worksheet
Appendix C	Photo Log

## **1.0 INTRODUCTION**

This Preliminary Assessment (PA) is prepared in partial fulfillment of Work Assignment Number 27-8JZZ issued to Morrison Knudsen Corporation-Environmental Services Division (MK) by the Region VIII office of the U.S. Environmental Protection Agency under ARCS contract No. 68-W9-0025. This PA concerns the Fargo, North Dakota Town Gas site, which has CERCLIS ID number NDD986271807.

## **2.0 OBJECTIVES**

The objective of this PA is to collect information concerning conditions at the Fargo Town Gas site sufficient to assess the threat posed to human health and the environment, and to determine the need for additional CERCLA/SARA or other appropriate action.

## **3.0 SITE DESCRIPTION**

### **3.1 Site Location**

The site address is 11 North 12th Street in Fargo. The site is bounded on the north by 1st Avenue North, on the west by 12th Street, on the east by 11th Street, and on the south by Northern Pacific Avenue. The approximate coordinates are 46°51'16" north latitude, 96°46'51" west longitude in S16 of R48W and T139N. The current land use on-site is residential; surrounding land use is primarily residential and commercial.

### **3.2 Operational History**

According to available information, the site was constructed in the mid 1880s and was operated under the name Fargo Electric Light, Gaslight, and Coke Company (Sanborn, 1888). The company utilized a coal gasification process to produce manufactured coal gas or "town gas". This product was used mainly to power the town's street lamps, hence the name town gas. In some instances it was also used to heat building spaces.

The coal gas was produced from the heat treatment of coal in a closed vessel, or retort, in a process known as carbonization. This process produces a combustible gas comprised mainly of hydrogen and methane which has a typical heating value of between



400 and 550 British Thermal Units (BTU) per cubic foot. The primary by-products that result from carbonization include coke, tar, and ammonia (Radian, 1991).

Around 1905, the site changed ownership and operated by the name of Union Light, Heat, and Power Companies Gas Works (ULHP) (Sanborn, 1905). According to production rate tables, the production at the site remained virtually unchanged after the ownership change.

In the early 1930s, ULHP incorporated water gas to its process. Water gas was generally used to supplement the production of coal gas in order for gas manufacturers to meet cyclic demands.

Water gas is produced from passing steam (thus the term water gas) through hot coke to form a gas comprised mainly of hydrogen and carbon monoxide. Heat treatment of coke or oil to produce gas was known as gasification, whereas carbonization referred to the heat treatment of coal. Water gas typically has a heating value of approximately 300 BTU/cubic foot and is non-luminous due to the lack of rich hydrocarbons. Because town gas was primarily used for lighting purposes, it was desired to enrich the water gas, usually by the addition of gas produced by the cracking of oil, forming carburetted water gas. The oil gas, having a much higher heating value (approximately 1700 BTU/cubic foot) and hydrocarbon content than water gas, resulted in a mixture that was comparable to coal gas in terms of illumination and heating values. The carburetted water gas was also amenable to the same purification processes as coal gas, although less coke, tar, and ammonia production were characteristic of water gas production compared with coal gas production (Radian, 1991).

In the early 1950s Northern States Power (NSP) took over the site. They operated the site until the late 1960s when they decided that it was not feasible to convert the site for natural gas production and demolished it. The property was sold and in 1969 an apartment building was constructed on the site. The building is still operating on site, owned and managed by Rick Jordall and Associates of Fargo under the name of Camelot Apartments (Cass County, 1993).

### **3.3 Site Characteristics**

#### **3.3.1 Geography**

Fargo is located in the southeastern part of North Dakota, in the Red River of the North Valley. Fargo is the largest city in Cass County, and in all of North Dakota, with a population of 70,047 people. Cass County has an area of 1749 square miles, which on the east borders the Red River of the North and Clay County, Minnesota (Klausig, 1986 and USGS, 1971).

#### **3.3.2 Geology**

The topography of the bedrock surface in Cass County was formed during the Tertiary Age by subaerial erosion and later was altered by glacial erosion. The general slope of the bedrock is to the east. The most prominent features are the two northward trending valleys in the central and eastern parts of the county. The eastern valley is a steep-sided continuation of a valley originating in southern Richland County. This valley, which is probably the ancestral Red River, turns east at Fargo and extends into Minnesota.

Cass County is completely covered with glacial drift of the Pleistocene era. The thickness of the drift ranges from 132 to 447 feet, with an average of more than 250 feet. The variations in thickness are due primarily to bedrock irregularities. The surficial deposits of the county were formed as the last ice age receded from the area, however, evidence of older drift deposits in several parts of the county was discovered by test drilling. The age of the older drift deposits is largely unknown.

The most recent deposits found are alluvium and dune sands. The alluvium consists of clay, silt, sand, and fine gravel that was deposited by postglacial streams. It is difficult to determine the thickness of the alluvium due to the lack of exposures. Augering in stream valleys and examination of exposures in undercut banks indicate that the alluvium is as much as fifteen feet thick in places.

The sand areas are characterized by hummocky topography, rather than distinct dunes, and the local relief is less than ten feet. The dune sand was derived from the delta. Consequently the grain sizes (silt to fine sand) are about the same as those of deltaic deposits. The surficial sand is usually grayish brown in color because of the presence

of decayed organic matter. The color becomes brown to yellowish brown with depth as the dunes sand grades imperceptibly into the underlying deltaic deposits.

Most of the soils in Cass County are characterized by a thick black organic topsoil and limy subsoil. Fargo and Bearden clay are the dominant soil types, and cover the majority of the lake plain area. Most of Cass County is cultivated, however the areas west of Fargo, especially the Sheyenne delta, are used only for grazing because they contain light sandy soils that are prone to erosion when tilled (Klausig, 1986).

### **3.3.3 Hydrogeology**

The Fargo aquifer is a buried glaciofluvial deposit that underlies an area of at least ten square miles, mostly within the city limits of Fargo. About 25 test holes are known to have penetrated the aquifer. Most of these were drilled prior to 1950, although several were drilled much more recently in order to define the northern border of the aquifer.

The aquifer thickness ranges from 0 to about 160 feet, and averages about 45 feet. The aquifer consists of fine to coarse sand interbedded and intermixed with gravel.

The aquifer could be recharged by lateral movement of water through the till and by downward percolation of water through the overlying sediments. At the present time water levels in the aquifer are well above the top of the till. Recharge by downward percolation probably will not take place until water levels are lowered below the base of the lake deposits.

Assuming an average thickness of 45 feet and a porosity of 30 percent, it is estimated that there is 86,000 acre-feet of water in transient storage. From July 1940 to October 1952, the water level in well 139-48-6ccd declined about 7.5 feet. In this time period, the water pumped from the aquifer was used to supplement the Fargo municipal supply from the Red River of the North in summers when the flow in the river was inadequate or when water demands were unusually high. The decline and the fluctuations in the aforementioned well were attributed to the pumping from the Fargo supply well 139-49-1cbd2.

The Fargo supply well was abandoned on October 7, 1952, and no significant amount of water is known to have been pumped from the aquifer until the Cass-Clay Creamery well,

139-49-1cdb was placed into operation June 1, 1956. This well is located near the intersection of 2nd Avenue and 20th Street North, approximately 2 miles north from the site. The water from this well is used for facility cooling and washing operations (FCHD, 1994). The volume of waste water discharged into the Fargo sewer indicates that the creamery well pumps about 19.9 million gallons annually. Data from the well development test indicate that the well was pumped for a period of 14 hours at a discharge rate of 400 to 596 gallons per minute (gpm), with a drawdown ranging from 68 to 78 feet. The average pumping rate was 478 gpm and the average drawdown was 72 feet.

In November 1960, a well was drilled into the aquifer for use by the Western Fruit Express Company. The water pumped from this well is used to wash railroad refrigeration cars. Estimated annual pumpage amounts to about 600,000 gallons.

At the present time, water levels are well above the top of the aquifer and drainage of the aquifer materials and of the till has not yet begun, even after extended periods of pumping. This may be partially due to the fact that there is no longer usage of the aquifer for municipal or domestic purposes. The city of Fargo and surrounding areas receive their municipal and domestic use waters from surface water intakes on the Red River of the North.

Chemical analysis of two water samples taken from the aquifer indicate that the water is a hard sodium bicarbonate type. The total dissolved solids ranged from 750 ppm in the sample taken from the Western Fruit Express Company well to 1,129 ppm in the sample taken from test hole 140-49-36aaa. A comparison of the chemical analysis on Table 1 indicate there has been no significant change of the quality of the water in the Fargo Aquifer between 1949 and 1964 (Klausig, 1986). The two wells shown on Table 1 are approximately 1/2 mile apart.

### **3.3.4 Hydrology**

The site is located less than 1 mile from the Red River of the North. The largest surface water feature in the county is the Red River of the North, which flows north along the east edge of Fargo. The area surrounding the site is served by a underground municipal storm sewer system. Surface water runoff leaving the site is intercepted by the municipal sewers on the adjacent streets. Storm water would leave the site via this system except perhaps in times of high flow. The point of discharge from the storm sewer to the Red

River of the North is approximately 1 mile east of the site (near the intersection of 3rd Avenue North and 2nd Street) (FCED, 1994a). The storm water is not treated prior to discharge (FCED, 1994b).

The annual average flow for the Red River near Fargo is 574 cfs (White, 1993). Natural drainage in the lake plain area (of which Fargo is part of) is not well integrated. There are several (more than one series) small, deep gullies that flow in an easterly direction, most likely discharging into the Red River of the North. These gullies however, only achieve a high flow capacity at times of storm runoff or snowmelt.

The City of Fargo receives its municipal drinking water supply from two side-by-side intakes 1.5 miles south (upstream) of the site from the Red River of the North under permit number 749 (ND State Water Commission, 1994).

### **3.3.5. Climate**

The climate of the area is characterized by long cold winters and short summers. During the winter, temperatures as low as -35°F have been recorded. The summers are usually warm, and midday temperatures occasionally rise to 100°F. However, the maximums are usually in the 80s. The mean annual temperature is 39.9°F. Mean annual precipitation is 19.30 inches, with most precipitation falling between May and September (Klausig, 1986).

## **4.0 PRELIMINARY PATHWAY ANALYSIS**

### **4.1 Waste Characteristics**

The primary wastes or residues created in the process of coal gasification are coal tars. These coal tars were typically disposed of on site, creating what is referred to as "coal tar lagoons". These lagoons are typically discovered during well installation or various construction efforts. The depth at which the lagoons are discovered depends largely on the dates of operation associated with the coal gasification plants. According to Mohammadi, typical lagoons have ten feet of tar with underlying tar saturated soils. Information concerning the composition, average size, and containment of these lagoons is largely based on recent remediation efforts by various environmental and engineering

firms handling historically similar sites. There is no specific waste characteristics data available for this site.

Coal tars are composed mainly of polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and phenols. Several inorganic compounds also can be found including: ammonia, lead, silica, iron sulfates, and cyanides. The physical characteristics and chemical composition of the tar depend upon the type of coal from which it was derived, what gasification process was utilized, and the temperatures utilized in the process.

PAHs are generally immobile and non-biodegradable. They also usually have low solubility in water, creating persistence in the environment. Although PAHs are usually not water soluble, they are readily assimilated by the roots of plants and thereupon enter the food chain. As they move up the food chain, accumulating in the fatty tissues of vertebrates, they become more and more concentrated, creating serious physiological impairments. Some of the more frequent PAHs found in coal tar include: benzo-pyrene, anthracene, acenaphthene, phenanthrene, fluoranthene, benzo-fluoranthene and naphthalene. Naphthalene is an important compound due to the fact that it does not adhere to soil particles and can be monitored as an indicator of contamination. Naphthalene is commonly used as a fingerprint for identification of the coal tar plume. Another constituent of coal tar is light aromatic compounds, such as benzene, toluene, and xylenes. These chemicals are mobile and may increase the mobility potential of the PAHs. As compared to benzene, PAHs generally have lower water solubilities and a more restricted mobility. Benzene and similar coal tar components have been remediated in ground water at a manufactured gas site in Colorado using in-situ air sparging, which enhances the natural biodegradation of these compounds (CDH, 1993).

Coal tar itself is not designated as a hazardous waste, but most of the constituent chemicals mentioned above are regulated by various environmental legislation. Deposits of coal tar can exist in four fractions: a solid or semi-solid, a dense non-aqueous phase liquid (DNAPL), a light non-aqueous phase liquid (LNAPL), and a water solution. The solid or semi-solid fraction tends to remain where it was deposited. The DNAPL fraction can migrate vertically until it reaches an impermeable layer such as bedrock, where it can also move horizontally. The LNAPL fraction can float and move on the ground water surface, and the soluble portion can dissolve into the ground water (Mohammadi, 1992).

There is no data available to document a waste removal at the site, or to document that any remediation has taken place. NSP was in control of the site at the time, but they have no record of the site demolition, demolition contractor, or where the demolished materials were shipped. No surficial contamination was observed during the site reconnaissance conducted on 5/19/93. Considering the historical evidence from similar sites, it is possible that waste generated at the site has been buried on-site sometime during the approximately twenty-five years since the site has been active.

#### **4.2 Air Migration Pathway**

Due to the current site conditions, air migration of contaminants is considered very unlikely. The volatile components associated with the waste available for air migration should no longer exist. There were no areas of exposed waste observed during the site visit (Photo Log), therefore it is unlikely that particulate migration is occurring. There have been no recorded complaints about odors associated with this site. The majority of the site is covered by the apartment building and the asphalt parking lot. Several cracks exist in certain areas of the pavement and asphalt. There are approximately 200 residents living in the apartment building onsite, and the site is found in an urban residential area. Two endangered species, the bald eagle and peregrine falcon, migrate through Cass County and may be present within the four-mile radius. Also, two candidate species exist in Cass County: the loggerhead strike and regal fritillary butterfly (NDFG, 1993b).

#### **4.3 Ground Water Migration Pathway**

There is no available data documenting a release to the ground water. However, considering that there likely was no containment and that liquid waste fractions may have been present, a historical release to the ground water is likely.

The site is underlain by the Fargo aquifer, which was used as a municipal water source until 1952, when the supply well was abandoned. Currently there are no wells designated for drinking water in the Fargo aquifer. The wells in use are for agricultural and industrial purposes.

#### **4.4 Surface Water Migration Pathway**

There is no available data documenting a release to the surface water. The waste source, if present, is contained from runoff by the structure and the pavement on-site. During the site reconnaissance it was observed that the runoff from the site is intercepted by the municipal storm sewer system on the adjacent streets. The storm water flows underground and is discharged untreated into the Red River of the North approximately one mile east of the site, near the intersection of 3rd Avenue North and 2nd Street (labelled as PPE in Figure 2).

The City of Fargo is in a 100-year floodplain and due to the type of possible waste source and lack of containment, a release from the site could result during a flood. It is also likely that historical migration of contaminated runoff occurred before the current municipal system was in place. The site is located less than 1 mile from the Red River of the North and due to this close proximity, a ground water to surface water migration is possible.

The Red River of the North is utilized as a drinking water resource. The only intakes are located approximately 1 mile south of the site (1.5 miles upstream from the site's probable point of entry) at a plant where the water is treated for potable use (see Figure 1). These intakes serve approximately 70,000 people (CFFP, 1994).

The Red River of the North is also a fishery. There are no production figures available at this time (NDFG, 1993a; MFG, 1993). Rare fish species that may be present in the 15 mile downstream segment include the mooneye, river shiner, trout perch (NDFG, 1993a). Two Federally endangered species, the bald eagle and the peregrine falcon may inhabit this downstream segment (NDFG, 1993b).

#### **4.5 Soil Migration Pathway**

There is no available data documenting a release to the soil. There were no areas of soil staining or stressed vegetation observed during the site reconnaissance. It is likely that any residual contamination, if present, is covered by more than two feet of soil and/or pavement and the buildings structure. There are approximately 200 residents living on the site in the Camelot Apartment complex (MK, 1993).



## 5.0 SUMMARY

The Fargo Town Gas Site was an operating coal gasification plant providing energy to the city from the mid 1880s to the late 1960s. Currently, the site is Camelot Apartments, owned and managed by Rick Jordall and Associates.

The City of Fargo obtains its drinking water supply from the Red River of the North, at intakes located approximately 1 mile south of the site and 1.5 miles upstream of the PPE for the municipal sewer outfall. These intakes serve approximately 70,000 people. Storm water leaving the site via the underground storm sewer system is not treated prior to discharge.

The ground water has not been used as a drinking water resource since 1952 when the city's municipal well was abandoned. A ground water to surface water migration pathway is possible considering the close proximity of the site to the river (less than one mile east of the site). However, dilution in the river is significant with a flow of 574 cfs.

There is no data available at this time to document an observed release through any of the migration pathways. However, due to the historical data available for similar town gas sites, it is possible that a residual subsurface waste quantity exists under the apartment complex that occupies the site today and migration to ground water may have occurred. A surface water pathway is possible as a result of incomplete site cover (cracks in the paved area) and the discharge of untreated storm water to the Red River of the North. The Red River of the North is a fishery. The peregrine falcon and the bald eagle, mooneye, river shiner, and trout perch may frequent or inhabit the downstream portions of the Red River of the North. No known sensitive environments occur onsite or elsewhere within the 4-mile radius.

## 6.0 REFERENCES

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City of Fargo Filtration Plant (CFFP), Telecommunication between Georgia Johnson, MK employee, and Rod Hendrickson, CFFP representative on January 21, 1994.

CDH (Colorado Department of Health), Preliminary Assessment of Pueblo Manufactured Gas Site, July 2, 1993.

Fargo City Engineering Department (FCED), Telecommunication between Georgia Johnson, MK employee, and Deb Schmidt, FCED representative on January 20, 1994(a).

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Klausig, 1986, Robert Klausig, Geologist for the United States Geological Survey, County Ground Water Studies and Geology and Ground Water Resources for Cass County, North Dakota.

Minnesota Fish and Game (MFG), Record of Communication with Bob Strand to Marta Green on August 26, 1993.

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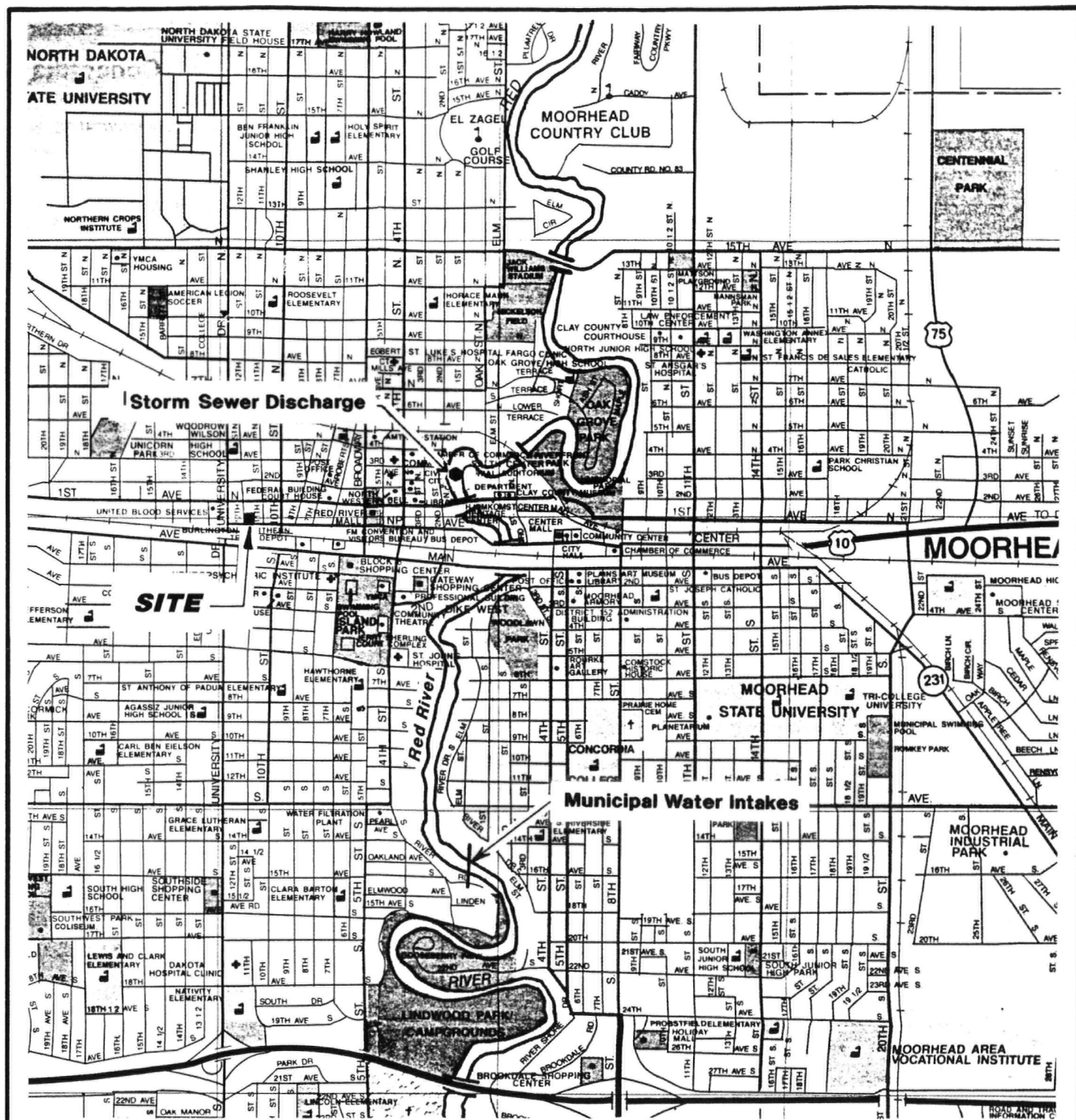
Radian, 1991, Survey of Town Gas and By-Product Locations in the U.S. 1880- 1950.

Rand McNally and Company, 1990, Fargo/Moorhead City street map.

Sanborn, 1888, Sanborn Fire Insurance Maps for dates, 1888-1950's

USGS, 1971, United States Geographical Survey, 1:250,000 scale Metric Topographical Maps of Fargo and Grand Forks, North Dakota.

USGS, 1971, United States Geographical Survey, 7.5 Minute Quadrangle Maps for North Dakota including: Fargo North and South, and West Fargo North and South.



north

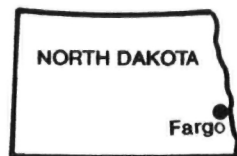


Figure 1

## Site Location Map

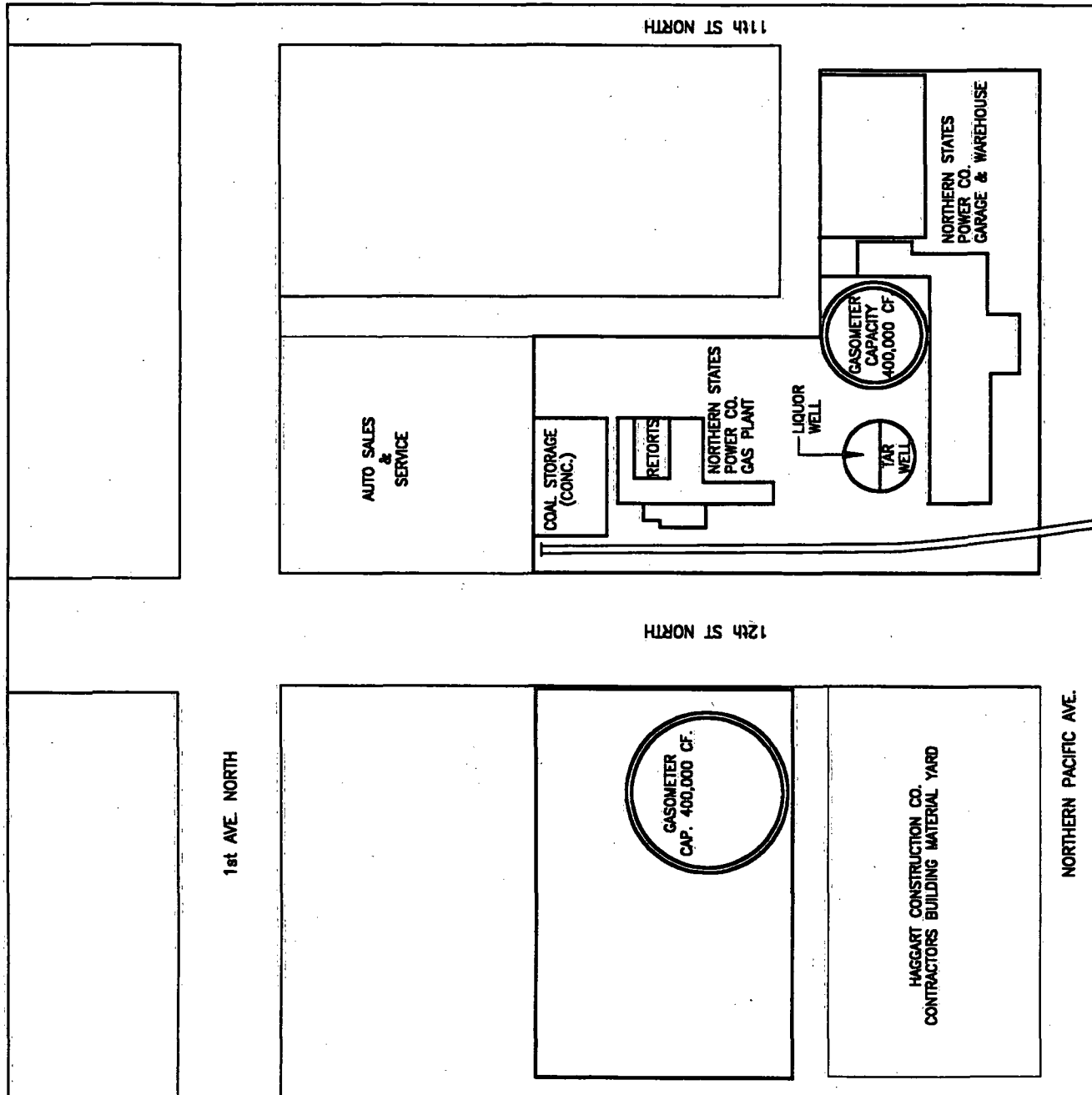
Town Gas Site:

Fargo

Current Use:

**Apartment Building  
(Private)**





SCALE  
FEET



ARCS

FARGO TOWN GAS SITE  
FARGO, NORTH DAKOTA

Figure 3

# HISTORICAL SITE FEATURES

ARCS Regions VI, VII, VIII  
US Environmental Protection Agency

MORRISON-KNUDSEN CORPORATION

FILE NAME (20)	405F001A.DWG	DATE: 2/9/94	REV	DRN
WORK ORDER	3780-2808	TASK	405F50	FIGURE 4
			A	P:

Source: Sanborn (1951)  
<CPD: 02/09/94 [TIME: 3:15 PM]>

# FARGO GROUND WATER QUALITY

Table 1

Owner:	City of Fargo	Western Fruit Express Co.
Location:	139-49-1cbdl	140-49-35ddd
Date of analysis:	Prior to 1949 (Dennis and others, 1949, p. 112a)	August 19, 1964
Constituents (parts per million)		
Silica (SiO <sub>2</sub> )	22	18
Iron (Fe)	.43	.35
Calcium (Ca)	45	49
Magnesium (Mg)	15	15
Sodium (Na) and potassium (K)	206	206
	21	
Bicarbonate (HOC <sub>3</sub> )	324	315
Sulfate (SO <sub>4</sub> )	161	162
Chloride (Cl)	132	143
Fluoride (F)	.6	.7
Nitrate (NO <sub>3</sub> )	3	1
Hardness as CaCO <sub>3</sub>	178	185
Total dissolved solids	746	750

Source: Klausig, 1966

**APPENDIX A**

**EPA PRELIMINARY ASSESSMENT FORM**



<b>Potential Hazardous Waste Site Preliminary Assessment Form</b>	<i>Identification</i>	
	State: <b>ND</b>	CERCLIS Number: <b>ND0986271807</b>
	CERCLIS Discovery Date:	

### 1. General Site Information

Name: <b>FARGO TOWN GAS</b>		Street Address: <b>11 North 12th Street</b>			
City: <b>FARGO</b>	State: <b>ND</b>	Zip Code: <b>58102</b>	County:	Co. Code:	Cong. Dist:
Latitude: <b>46° 51' 16. -"</b>		Longitude: <b>96° 46' 51. -"</b>		Approximate Area of Site: <b>Unknown</b> Acres ____ Square Ft.	
Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)					

### 2. Owner/Operator Information

Owner: <b>Rick Jordall and Associates</b>			Operator:		
Street Address: <b>P.O. Box 2983</b>			Street Address:		
City: <b>FARGO</b>			City:		
State: <b>ND</b>	Zip Code: <b>58108</b>	Telephone: <b>( ) Unknown</b>	State:	Zip Code:	Telephone: <b>( )</b>
Type of Ownership: <input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name _____ <input type="checkbox"/> State <input type="checkbox"/> Not Specified <input type="checkbox"/> Indian <input type="checkbox"/> Other _____			How Initially Identified: <input type="checkbox"/> Citizen Complaint <input type="checkbox"/> Federal Program <input type="checkbox"/> PA Petition <input type="checkbox"/> Incidental <input type="checkbox"/> State/Local Program <input checked="" type="checkbox"/> Not Specified <input type="checkbox"/> RCRA/CERCLA Notification <input type="checkbox"/> Other _____		

### 3. Site Evaluator Information

Name of Evaluator: <b>Georgia Johnson</b>	Agency/Organization: <b>Morrison Knudsen</b>	Date Prepared: <b>2/1/94</b>
Street Address: <b>7100 E. Belleview Suite 300</b>	City: <b>Englewood</b>	State: <b>CO</b>
Name of EPA or State Agency Contact: <b>PAT Smith</b>		Street Address: <b>EPA Region VIII (8HWM-SM) 999 18th St. Suite 500</b>
City: <b>Denver</b>	State: <b>CO</b>	Telephone: <b>(303) 293-1262</b>

### 4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other _____ Date: _____	Signature:  Name (typed):  Position:
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Potential Hazardous Waste Site  
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number:

ND0986271807

### 5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):

- ☒ Industrial ☐ Agriculture ☐ DOI  
☒ Commercial ☐ Mining ☐ Other Federal Facility  
☒ Residential ☐ DOD  
☐ Forest/Fields ☐ DOE ☐ Other \_\_\_\_\_

Site Setting:

- ☒ Urban  
☐ Suburban  
☐ Rural

Years of Operation:

Beginning Year 1880

Ending Year 1969

☐ Unknown

Type of Site Operations (check all that apply):

- ☐ Manufacturing (must check subcategory)  
☐ Lumber and Wood Products  
☐ Inorganic Chemicals  
☐ Plastic and/or Rubber Products  
☐ Paints, Varnishes  
☐ Industrial Organic Chemicals  
☐ Agricultural Chemicals  
(e.g., pesticides, fertilizers)  
☐ Miscellaneous Chemical Products  
(e.g., adhesives, explosives, ink)  
☐ Primary Metals  
☐ Metal Coating, Plating, Engraving  
☐ Metal Forging, Stamping  
☐ Fabricated Structural Metal Products  
☐ Electronic Equipment  
☐ Other Manufacturing  
☐ Mining  
☐ Metals  
☐ Coal  
☐ Oil and Gas  
☐ Non-metallic Minerals

- ☐ Retail  
☐ Recycling  
☐ Junk/Salvage Yard  
☐ Municipal Landfill  
☐ Other Landfill  
☐ DOD  
☐ DOE  
☐ DOI  
☐ Other Federal Facility \_\_\_\_\_  
☐ RCRA  
☐ Treatment, Storage, or Disposal  
☐ Large Quantity Generator  
☐ Small Quantity Generator  
☐ Subtitle D  
☐ Municipal  
☐ Industrial  
☐ "Converter"  
☐ "Protective Filer"  
☐ "Non- or Late Filer"  
☐ Not Specified  
☒ Other COAL GAS PRODUCTION

Waste Generated:

- ☒ Onsite  
☐ Offsite  
☐ Onsite and Offsite

Waste Deposition Authorized By:

- ☐ Present Owner  
☐ Former Owner  
☐ Present & Former Owner  
☐ Unauthorized  
☒ Unknown

Waste Accessible to the Public:

- ☐ Yes  
☒ No

Distance to Nearest Dwelling,  
School, or Workplace:

0 Feet

### 6. Waste Characteristics Information

Source Type:

(check all that apply)

- ☐ Landfill  
☒ Surface Impoundment  
☐ Drums  
☐ Tanks and Non-Drum Containers  
☐ Chemical Waste Pile  
☐ Scrap Metal or Junk Pile  
☐ Tailings Pile  
☐ Trash Pile (open dump)  
☐ Land Treatment  
☐ Contaminated Ground Water Plume  
(unidentified source)  
☐ Contaminated Surface Water/Sediment  
(unidentified source)  
☒ Contaminated Soil  
☐ Other \_\_\_\_\_  
☐ No Sources

Source Waste Quantity:  
(include units)

Unknown

Tier \*

General Types of Waste (check all that apply)

- ☐ Metals ☐ Pesticides/Herbicides  
☒ Organics ☐ Acids/Bases  
☐ Inorganics ☐ Oily Waste  
☐ Solvents ☐ Municipal Waste  
☐ Paints/Pigments ☐ Mining Waste  
☐ Laboratory/Hospital Waste ☐ Explosives  
☐ Radioactive Waste ☐ Other \_\_\_\_\_  
☐ Construction/Demolition  
Waste

Physical State of Waste as Deposited (check all that  
apply):

- ☐ Solid ☒ Sludge ☐ Powder  
☐ Liquid ☐ Gas

\* C = Constituent, W = Wastestream, V = Volume, A = Area

## **APPENDIX B**

### **PA WORKSHEET**

Preparer's Name: **Georgia Johnson**

Location: **Region VII**

Site Name: **Fargo Town Gas Site**

Date: **2/22/94**

**PA Worksheet**

MAJOR CONSIDERATIONS

- A) DOES ANY QUALITATIVE OR QUANTITATIVE INFORMATION EXIST THAT MAY INDICATE AN OBSERVED RELEASE TO AIR, GROUND WATER, SOIL OR SURFACE WATER? **No**

Describe: **No**

- B) IF THE ANSWER TO #1 IS YES, IS THERE EVIDENCE OF DRINKING WATER SUPPLY CONTAMINATION OR ANY OTHER TARGET CONTAMINATION (i.e. food chain, recreation areas, or sensitive environments)?

Describe:

- C) ARE THERE SENSITIVE ENVIRONMENTS WITHIN A 4-MILE RADIUS OR 15 DOWNSTREAM MILES OF THE SITE? **YES** . IF YES, DESCRIBE IF ANY OF THE FOLLOWING APPLY:

- Multiple sensitive environments?
- Federally designated sensitive environment(s)? **Threatened and endangered species that may inhabit the downstream segment include the bald eagle and peregrine falcon. Rare fish species that may be present in the 15 mile downstream segment include the mooneye, river shiner, and trout perch.**
- Sensitive environment(s) downstream on a small or slow flowing surface water body?

- D) IS THE SITE LOCATED IN AN AREA OF KARST TERRAIN? **No**

Describe:

- E) DOES THE WASTE SOURCE LIE FULLY OR PARTIALLY WITHIN A WELLHEAD PROTECTION AREA AS DESIGNATED ACCORDING TO SECTION 1428 OF THE SAFE DRINKING WATER ACT? **No**

- F) DOES ANY QUALITATIVE OR QUANTITATIVE INFORMATION EXIST THAT PEOPLE LIVE OR ATTEND SCHOOL ON ONSITE CONTAMINATED PROPERTY? **Yes**

Describe: **Apartment building located onsite that houses 200 residents.**

## SITE INFORMATION

1. SITE NAME: **Fargo Town Gas Site**  
ADDRESS: **11 North 12th Street**  
CITY: **Fargo** COUNTY: **Cass** STATE: **ND** ZIP: **58102**  
EPA ID: **NDD986271708**  
LATITUDE: **46° 51' 16" North** LONGITUDE: **96° 46' 51" West**
2. DIRECTIONS TO SITE (From nearest public road): **Site is located on 12th Street, 1 block north of Main Avenue.**
3. SITE OWNERSHIP HISTORY (Use additional sheets, if necessary):
- A. Name of current owner: **Rick Jordall and Associates**  
Address: **PO Box 2983**  
City: **Fargo** County: **Cass** State: **ND** Zip: **58108**
- B. Name of previous owner: **Northern States Power**  
Address: **PO Box 2983**  
City: **Grand Forks** County: **Grand Forks** State: **ND** Zip: **58201**  
Dates: From **~1951** To **~1969** Phone: **701-795-5000**
- Source of ownership data: **Cass County Assessor and Sanborn Maps 1951.**
4. TYPE OF OWNERSHIP (Check all that apply):  
Private ☒ State ☐ Municipal ☐  
Federal ☐ County ☐ Other (describe): ☐

5. NAME OF SITE OPERATOR: **Rick Jordall & Associates**
- ADDRESS: **PO Box 2983**
- CITY: **Fargo** COUNTY: **Cass** STATE: **ND** ZIP: **58201**
- PHONE: **701-293-1476**

**BACKGROUND/OPERATING HISTORY**

6. DESCRIBE OPERATING HISTORY OF SITE:  
**Mid 1880s -Constructed for production of coal gas -via closed vessel retort/carbonization.**  
**1930s -ULHP incorporated water gas production -steam passed through hot coke.**  
**1969 -site cleared of previous activity and an apartment building was constructed (in operation today).**

Source of information: **(Radian, 1991; Sanborn Maps; Cass County, 1993)**

7. DESCRIBE SITE AND NATURE OF SITE OPERATIONS (property size, manufacturing, waste disposal, storage, etc.):

**The site was a coal gasification plant operating from the mid 1880s until the late 1960s. It is now a private apartment complex.**

Source of information: **(Sanborn Maps; MK, 1993)**

8. DESCRIBE ANY EMERGENCY OR REMEDIAL ACTIONS THAT HAVE OCCURRED AT THE SITE:

Source of Information:

9. ARE THERE RECORDS OR KNOWLEDGE OF ACCIDENTS OR SPILLS INVOLVING SITE WASTES?

**No**

Describe:

Source of Information:

10. DISCUSS EXISTING SAMPLING DATA AND BRIEFLY SUMMARIZE DATA QUALITY (e.g., sample objective, age/comparability, analytical methods, detections limits and QA/QC):

Source of information:

**WASTE CONTAINMENT/HAZARDOUS SUBSTANCE IDENTIFICATION**

11. FOR EACH SOURCE AT THE SITE, SUMMARIZE ON TABLE 1 (page 12): 1) Methods of hazardous substance disposal, storage or handling; 2) size/volume/area of all features/structures that might contain hazardous waste; 3) condition/integrity of each storage disposal feature or structure; and 4) types of hazardous substances handled.
12. BRIEFLY EXPLAIN HOW WASTE QUANTITY WAS ESTIMATED (e.g. historical records or manifests, permit applications, air photo measurements, etc):

Source of information:

13. DESCRIBE ANY RESTRICTIONS OR BARRIERS ON ACCESSIBILITY TO ONSITE WASTE MATERIALS:

**Residual contamination, if present is covered by soil, pavement or a building. Several cracks exist in the pavement.**

Source of information: **MK, 1993**



GROUND WATER CHARACTERISTICS

14. ANY POSITIVE OR CIRCUMSTANTIAL EVIDENCE OF A RELEASE TO GROUND WATER? **No.**

Describe: **No**

Source of Information:

15. ON TABLE 2 (page 13), GIVE NAMES, DESCRIPTIONS, AND CHARACTERISTICS OF GEOLOGIC/HYDROGEOLOGIC UNITS UNDERLYING THE SITE.

16. NET PRECIPITATION: **Mean annual Precipitation = 19.3"**  
**Annual Lake Evaporation = 28"**

SURFACE WATER CHARACTERISTICS

17. ARE THERE SURFACE WATER BODIES WITHIN 2 MILES OF THE SITE?

Ditches\_\_\_\_ Lakes\_\_\_\_ Pond\_\_\_\_  
Creeks\_\_\_\_ Rivers X Other\_\_\_\_

18. DISCUSS THE PROBABLE SURFACE RUNOFF PATTERNS FROM THE SITE TO SURFACE WATERS:

**Downgradient to the storm water sewer (approx. 1 mile) to the Red River of the North.**

19. PROVIDE A SIMPLIFIED SKETCH OF SURFACE RUNOFF AND SURFACE WATER FLOW SYSTEM FOR 15 DOWNSTREAM MILES (see Item #36).

20. ANY POSITIVE OR CIRCUMSTANTIAL EVIDENCE OF SURFACE WATER CONTAMINATION? **No.**

Describe:

Source of Information:

21. ESTIMATE THE SIZE OF THE UPGRADIENT DRAINAGE AREA FROM THE SITE: **< 1 acres.**

Source of Information: **Rand McNally, 1991.**

22. DETERMINE THE AVERAGE ANNUAL STREAM FLOW OF DOWNSTREAM SURFACE WATERS

Water body: **Red River of the North** Flow: **North** cfs **574**

Water body: Flow: cfs

Water body: Flow: cfs

Source of Information **North Dakota Water Commission, 1993.**

23. IS THE SITE OR PORTIONS THEREOF LOCATED IN SURFACE WATER? **No**

24. IS THE SITE LOCATED IN A FLOODPLAIN (indicate flood frequency)? **100 year**

25. IDENTIFY AND LOCATE (see Item #36) ANY SURFACE WATER RECREATION AREA WITHIN 15 DOWNSTREAM MILES OF THE SITE:

**None**

Source of Information:

26. TWO YEAR 24-HOUR RAINFALL: **3.86 inches**

27. DISCUSS GROUND WATER USAGE WITHIN FOUR MILES OF THE SITE:

**Industrial and agriculture use only.**

Source of information:

28. SUMMARIZE THE POPULATION SERVED BY GROUND WATER ON THE TABLE BELOW:

<u>Distance</u> (miles)	<u>Population</u>
On Site	0
0 - 1/4	0
1/4 - 1/2	0
1/2 - 1	0

1 - 2	0
2 - 3	0
3 - 4	0

Source of information: **North Dakota Geological Survey.**

29. IDENTIFY AND LOCATE (see Item #36) POPULATION SERVED BY SURFACE WATER INTAKES WITHIN 15 DOWNSTREAM MILES OF THE SITE:

**Approximately 75,000. Fargo and the surrounding suburban areas are served by surface water intakes from the Red River of the North 1 mile upstream of the site and 1.5 miles upstream of probable point of entry (PPE).**

30. DESCRIBE AND LOCATE FISHERIES WITHIN 15 DOWNSTREAM MILES OF THE SITE (i.e., provide standing crop of production and acreage, etc.):

**The Red River of the North is fished and produces catfish, walleye, northern pike and sager. No production crop figures are available.**

Source of information: **North Dakota State Game and Fish Department.**

31. DETERMINE THE DISTANCE FROM THE SITE TO THE NEAREST OF EACH OF THE FOLLOWING LAND USES

<u>Description</u>	<u>Distance</u> (miles)
Commercial/Industrial Institutional	< 1
Single Family Residential	< 1
Multi-Family Residential	Onsite
Park	< 1
Agricultural	75

Source of information: **USGS, 1971 and Rand McNalley, 1990.**

32. SUMMARIZE THE POPULATION WITHIN A FOUR-MILE RADIUS OF THE SITE:

<u>Distance</u> (miles)	<u>Population</u>
On Site	~200
0 - 1/4	~5,000
1/4 - 1/2	~5,000
1/2 - 1	~14,000
1 - 2	~18,000
2 - 3	~15,000
3 - 4	~10,000

Source of information: **USGS, 1971 and US Census, 1980.**

OTHER REGULATORY INVOLVEMENT

33. DISCUSS ANY PERMITS:

County: **None**

State: **None**

Federal: **None**

Other: **None**

Source of information:

34. SKETCH OF SITE

Include all pertinent features, e.g., wells, storage areas, underground storage tanks, waste areas, buildings, access roads, areas of ponded water, etc. Attach additional sheets with sketches of enlarged areas, if necessary.

See Figure 3

↑

35. SURFACE WATER FEATURES

Provide a simplified sketch of surface runoff and surface water flow system for 15 downstream miles. Include all pertinent features, e.g., intakes, recreation areas, fisheries, gauging stations, etc.

See Figure(s) in PA Narrative

N  
↑

TABLE 1  
WASTE CONTAINMENT AND HAZARDOUS SUBSTANCE IDENTIFICATION

SOURCE TYPE	SIZE (Volume/Area)	ESTIMATED WASTE QUANTITY	SPECIFIC COMPOUNDS	CONTAINMENT*	SOURCES OF INFORMATION
Possible residual coal tar	unknown	unknown	PAHs, benzene, toluene, xylene	Soil/Pavement Cover	MK, 1993

\* Containment of each source from the perspective of each migration pathway (e.g., ground water pathway - non-existent, natural or synthetic liner, corroding underground storage tank; surface water - inadequate freeboard, corroding bulk tanks; air - unstabilized slag piles, leaking drums, etc.)

TABLE 2

HYDROGEOLOGIC INFORMATION

STRATA NAME/DESCRIPTION	THICKNESS (ft.)	HYDRAULIC CONDUCTIVITY (cm/sac)	TYPE OF DISCONTINUITY	SOURCE OF INFORMATION
Fargo Aquifer	160	No data available.	Adjacent strata	Klausig, 1986
Dakota Sandstone Aquifer	700	No data available.	Adjacent strata	Klausig, 1986

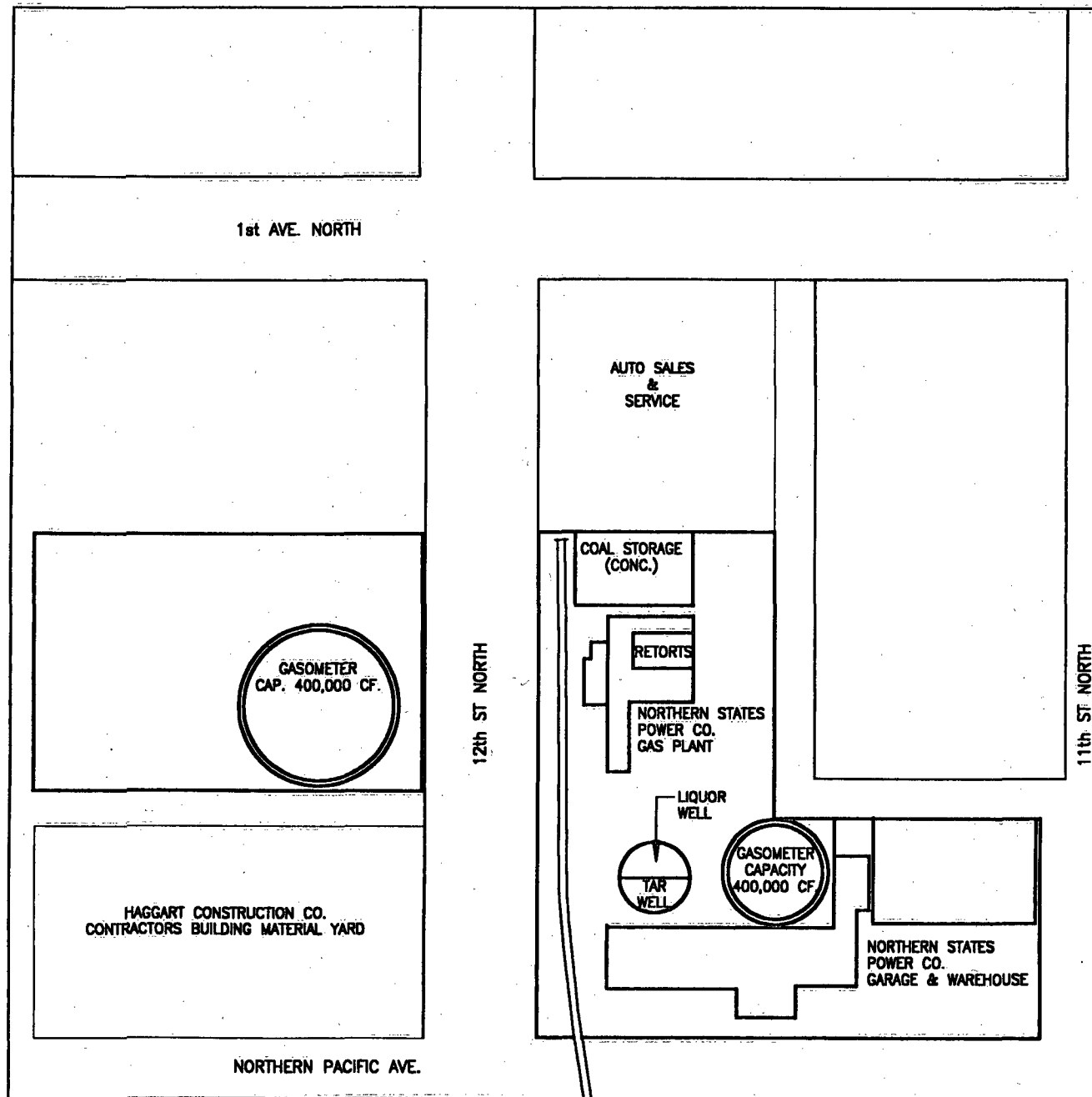
Discontinuity within four-miles from the site (e.g., river, strata "pinches out", etc.)



## **APPENDIX C**

### **PHOTO LOG**





north



SCALE  
FEET



<b>ARCS</b>			
FARGO TOWN GAS SITE FARGO, NORTH DAKOTA			
Figure 3			
<b>HISTORICAL SITE FEATURES</b>			
<b>ARCS</b> Regions VI, VII, VIII US Environmental Protection Agency			
<b>MORRISON-KNUDSEN CORPORATION</b>			
FILE NAME (CAD)	405F001A.DWG	DATE:	2/9/94
WORK ORDER	3780-2808	TASK	405F50
DRAWING NUMBER	FIGURE 4	REV	A
DRW	P:		

Source: Sanborn (1951)

<CPD: 02/09/94 [TIME: 3:15 PM]>

# FARGO GROUND WATER QUALITY

**Table 1**

Owner:	City of Fargo	Western Fruit Express Co.
Location:	139-49-1cddl	140-49-35ddd
Date of analysis:	Prior to 1949 (Dennis and others, 1949, p. 112a)	August 19, 1964


## Constituents (parts per million)

Silica (SiO <sub>2</sub> )	22	18
Iron (Fe)	.43	.35
Calcium (Ca)	45	49
Magnesium (Mg)	15	15
Sodium (Na) and potassium (K)	206	206
	21	
Bicarbonate (HOC <sub>3</sub> )	324	315
Sulfate (SO <sub>4</sub> )	161	162
Chloride (Cl)	132	143
Fluoride (F)	.6	.7
Nitrate (NO <sub>3</sub> )	3	1
Hardness as CaCO <sub>3</sub>	178	185
Total dissolved solids	746	750

*Source: Klausig, 1986*

**APPENDIX A**

**EPA PRELIMINARY ASSESSMENT FORM**

 <b>Potential Hazardous Waste Site Preliminary Assessment Form</b>	<b>Identification</b>	
	State: <b>ND</b>	CERCLIS Number: <b>ND0986271807</b>
	CERCLIS Discovery Date:	

### 1. General Site Information

Name: <b>FARGO TOWN GAS</b>		Street Address: <b>11 North 12th Street</b>			
City: <b>FARGO</b>	State: <b>ND</b>	Zip Code: <b>58102</b>	County:	Co. Code:	Cong. Dist:
Latitude: <b>46° 51' 16. - "</b>	Longitude: <b>96° 46' 51. - "</b>	Approximate Area of Site: <b>Unknown</b> Acres		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	
		Square Ft			

### 2. Owner/Operator Information

Owner: <b>Rick Jordall and Associates</b>			Operator:		
Street Address: <b>P.O. Box 2983</b>			Street Address:		
City: <b>FARGO</b>			City:		
State: <b>ND</b>	Zip Code: <b>58108</b>	Telephone: <b>( ) Unknown</b>	State:	Zip Code:	Telephone:
Type of Ownership: <input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Not Specified <input type="checkbox"/> Indian <input type="checkbox"/> Other _____			How Initially Identified: <input type="checkbox"/> Citizen Complaint <input type="checkbox"/> Federal Program <input type="checkbox"/> PA Petition <input type="checkbox"/> Incidental <input type="checkbox"/> State/Local Program <input checked="" type="checkbox"/> Not Specified <input type="checkbox"/> RCRA/CERCLA Notification <input type="checkbox"/> Other _____		

### 3. Site Evaluator Information

Name of Evaluator: <b>Georgia Johnson</b>	Agency/Organization: <b>Morrison Knudsen</b>	Date Prepared: <b>2/1/94</b>
Street Address: <b>7100 E. Bellemeur Suite 300</b>		City: <b>Englewood</b> State: <b>CO</b>
Name of EPA or State Agency Contact: <b>PAT Smith</b>		Street Address: <b>EPA Region VIII (8HWM-SM) 999 18th St. Suite 500</b>
City: <b>Denver</b>	State: <b>CO</b>	Telephone: <b>(303) 293-1262</b>

### 4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other _____ Date: _____	Signature:  Name (typed):  Position:
---	--	--



Potential Hazardous Waste Site  
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number:

ND 986271807

### 5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):

- |   |                                      |   |
|---|--------------------------------------|---|
| <input checked="" type="checkbox"/> Industrial  | <input type="checkbox"/> Agriculture | <input type="checkbox"/> DOI                    |
| <input checked="" type="checkbox"/> Commercial  | <input type="checkbox"/> Mining      | <input type="checkbox"/> Other Federal Facility |
| <input checked="" type="checkbox"/> Residential | <input type="checkbox"/> DOD         |   |
| <input type="checkbox"/> Forest/Fields          | <input type="checkbox"/> DOE         | <input type="checkbox"/> Other _____            |

Site Setting:

- ☒ Urban  
☐ Suburban  
☐ Rural

Years of Operation:

Beginning Year 1880

Ending Year 1969

☐ Unknown

Type of Site Operations (check all that apply):

- ☐ Manufacturing (must check subcategory)
- ☐ Lumber and Wood Products
  - ☐ Inorganic Chemicals
  - ☐ Plastic and/or Rubber Products
  - ☐ Paints, Varnishes
  - ☐ Industrial Organic Chemicals
  - ☐ Agricultural Chemicals (e.g., pesticides, fertilizers)
  - ☐ Miscellaneous Chemical Products (e.g., adhesives, explosives, ink)
  - ☐ Primary Metals
  - ☐ Metal Coating, Plating, Engraving
  - ☐ Metal Forging, Stamping
  - ☐ Fabricated Structural Metal Products
  - ☐ Electronic Equipment
  - ☐ Other Manufacturing
- ☐ Mining
- ☐ Metals
  - ☐ Coal
  - ☐ Oil and Gas
  - ☐ Non-metallic Minerals

- ☐ Retail
- ☐ Recycling
  - ☐ Junk/Salvage Yard
  - ☐ Municipal Landfill
  - ☐ Other Landfill
  - ☐ DOD
  - ☐ DOE
  - ☐ DOI
  - ☐ Other Federal Facility \_\_\_\_\_
  - ☐ RCRA
    - ☐ Treatment, Storage, or Disposal
    - ☐ Large Quantity Generator
    - ☐ Small Quantity Generator
    - ☐ Subtitle D
      - ☐ Municipal
      - ☐ Industrial
    - ☐ "Converter"
    - ☐ "Protective Filer"
    - ☐ "Non- or Late Filer"
  - ☐ Not Specified
  - ☒ Other COAL GAS PRODUCTION

Waste Generated:

- ☒ Onsite  
☐ Offsite  
☐ Onsite and Offsite

Waste Deposition Authorized By:

- ☐ Present Owner  
☐ Former Owner  
☐ Present & Former Owner  
☐ Unauthorized  
☒ Unknown

Waste Accessible to the Public:

- ☐ Yes  
☒ No

Distance to Nearest Dwelling,  
School, or Workplace:

0 Feet

### 6. Waste Characteristics Information

Source Type:

(check all that apply)

- ☐ Landfill
- ☒ Surface Impoundment
- ☐ Drums
- ☐ Tanks and Non-Drum Containers
- ☐ Chemical Waste Pile
- ☐ Scrap Metal or Junk Pile
- ☐ Tailings Pile
- ☐ Trash Pile (open dump)
- ☐ Land Treatment
- ☐ Contaminated Ground Water Plume (unidentified source)
- ☐ Contaminated Surface Water/Sediment (unidentified source)
- ☒ Contaminated Soil
- ☐ Other \_\_\_\_\_
- ☐ No Sources

Source Waste Quantity:  
(include units)

Unknown

Tier \*

General Types of Waste (check all that apply)

- |  |  |
|--|--|
| <input type="checkbox"/> Metals                        | <input type="checkbox"/> Pesticides/Herbicides |
| <input checked="" type="checkbox"/> Organics           | <input type="checkbox"/> Acids/Bases           |
| <input type="checkbox"/> Inorganics                    | <input type="checkbox"/> Oily Waste            |
| <input type="checkbox"/> Solvents                      | <input type="checkbox"/> Municipal Waste       |
| <input type="checkbox"/> Paints/Pigments               | <input type="checkbox"/> Mining Waste          |
| <input type="checkbox"/> Laboratory/Hospital Waste     | <input type="checkbox"/> Explosives            |
| <input type="checkbox"/> Radioactive Waste             | <input type="checkbox"/> Other _____           |
| <input type="checkbox"/> Construction/Demolition Waste |  |

Physical State of Waste as Deposited (check all that apply):

- ☐ Solid ☒ Sludge ☐ Powder  
☐ Liquid ☐ Gas

\* C = Constituent, W = Wastestream, V = Volume, A = Area

## **APPENDIX B**

### **PA WORKSHEET**



Preparer's Name: **Georgla Johnson**

Location: **Region VII**

Site Name: **Fargo Town Gas Site**

Date: **2/22/94**

**PA Worksheet**

MAJOR CONSIDERATIONS

- A) DOES ANY QUALITATIVE OR QUANTITATIVE INFORMATION EXIST THAT MAY INDICATE AN OBSERVED RELEASE TO AIR, GROUND WATER, SOIL OR SURFACE WATER? **No**

Describe: **No**

- B) IF THE ANSWER TO #1 IS YES, IS THERE EVIDENCE OF DRINKING WATER SUPPLY CONTAMINATION OR ANY OTHER TARGET CONTAMINATION (i.e. food chain, recreation areas, or sensitive environments)?

Describe:

- C) ARE THERE SENSITIVE ENVIRONMENTS WITHIN A 4-MILE RADIUS OR 15 DOWNSTREAM MILES OF THE SITE? **YES** . IF YES, DESCRIBE IF ANY OF THE FOLLOWING APPLY:

- Multiple sensitive environments?
- Federally designated sensitive environment(s)? **Threatened and endangered species that may inhabit the downstream segment include the bald eagle and peregrine falcon. Rare fish species that may be present in the 15 mile downstream segment include the mooneye, river shiner, and trout perch.**
- Sensitive environment(s) downstream on a small or slow flowing surface water body?

- D) IS THE SITE LOCATED IN AN AREA OF KARST TERRAIN? **No**

Describe:

- E) DOES THE WASTE SOURCE LIE FULLY OR PARTIALLY WITHIN A WELLHEAD PROTECTION AREA AS DESIGNATED ACCORDING TO SECTION 1428 OF THE SAFE DRINKING WATER ACT? **No**

- F) DOES ANY QUALITATIVE OR QUANTITATIVE INFORMATION EXIST THAT PEOPLE LIVE OR ATTEND SCHOOL ON ONSITE CONTAMINATED PROPERTY? **Yes**

Describe: **Apartment building located onsite that houses 200 residents.**

## SITE INFORMATION

1. SITE NAME: **Fargo Town Gas Site**  
ADDRESS: **11 North 12th Street**  
CITY: **Fargo** COUNTY: **Cass** STATE: **ND** ZIP: **58102**  
EPA ID: **NDD986271708**  
LATITUDE: **46° 51' 16" North** LONGITUDE: **96° 46' 51" West**
2. DIRECTIONS TO SITE (From nearest public road): **Site is located on 12th Street, 1 block north of Main Avenue.**
3. SITE OWNERSHIP HISTORY (Use additional sheets, if necessary):
- A. Name of current owner: **Rick Jordall and Associates**  
Address: **PO Box 2983**  
City: **Fargo** County: **Cass** State: **ND** Zip: **58108**
- B. Name of previous owner: **Northern States Power**  
Address: **PO Box 2983**  
City: **Grand Forks** County: **Grand Forks** State: **ND** Zip: **58201**  
Dates: From **~1951** To **~1969** Phone: **701-795-5000**
- Source of ownership data: **Cass County Assessor and Sanborn Maps 1951.**
4. TYPE OF OWNERSHIP (Check all that apply):  
Private ☒ State ☐ Municipal ☐  
Federal ☐ County ☐ Other (describe): ☐

5. NAME OF SITE OPERATOR: **Rick Jordall & Associates**
- ADDRESS: **PO Box 2983**
- CITY: **Fargo** COUNTY: **Cass** STATE: **ND** ZIP: **58201**
- PHONE: **701-293-1476**

**BACKGROUND/OPERATING HISTORY**

6. DESCRIBE OPERATING HISTORY OF SITE:  
**Mid 1880s -Constructed for production of coal gas -via closed vessel retort/carbonization.**  
**1930s -ULHP incorporated water gas production -steam passed through hot coke.**  
**1969 -site cleared of previous activity and an apartment building was constructed (in operation today).**

Source of information: **(Radian, 1991; Sanborn Maps; Cass County, 1993)**

7. DESCRIBE SITE AND NATURE OF SITE OPERATIONS (property size, manufacturing, waste disposal, storage, etc.):

**The site was a coal gasification plant operating from the mid 1880s until the late 1960s. It is now a private apartment complex.**

Source of information: **(Sanborn Maps; MK, 1993)**

8. DESCRIBE ANY EMERGENCY OR REMEDIAL ACTIONS THAT HAVE OCCURRED AT THE SITE:

Source of Information:

9. ARE THERE RECORDS OR KNOWLEDGE OF ACCIDENTS OR SPILLS INVOLVING SITE WASTES?

**No**

Describe:

Source of Information:

10. DISCUSS EXISTING SAMPLING DATA AND BRIEFLY SUMMARIZE DATA QUALITY (e.g., sample objective, age/comparability, analytical methods, detections limits and QA/QC):

Source of information:

**WASTE CONTAINMENT/HAZARDOUS SUBSTANCE IDENTIFICATION**

11. FOR EACH SOURCE AT THE SITE, SUMMARIZE ON TABLE 1 (page 12): 1) Methods of hazardous substance disposal, storage or handling; 2) size/volume/area of all features/structures that might contain hazardous waste; 3) condition/integrity of each storage disposal feature or structure; and 4) types of hazardous substances handled.
12. BRIEFLY EXPLAIN HOW WASTE QUANTITY WAS ESTIMATED (e.g. historical records or manifests, permit applications, air photo measurements, etc):

Source of information:

13. DESCRIBE ANY RESTRICTIONS OR BARRIERS ON ACCESSIBILITY TO ONSITE WASTE MATERIALS:

**Residual contamination, if present is covered by soil, pavement or a building. Several cracks exist in the pavement.**

Source of information: **MK, 1993**

GROUND WATER CHARACTERISTICS

14. ANY POSITIVE OR CIRCUMSTANTIAL EVIDENCE OF A RELEASE TO GROUND WATER? **No.**

Describe: **No**

Source of information:

15. ON TABLE 2 (page 13), GIVE NAMES, DESCRIPTIONS, AND CHARACTERISTICS OF GEOLOGIC/HYDROGEOLOGIC UNITS UNDERLYING THE SITE.

16. NET PRECIPITATION: **Mean annual Precipitaion = 19.3"**  
**Annual Lake Evaporation = 28"**

SURFACE WATER CHARACTERISTICS

17. ARE THERE SURFACE WATER BODIES WITHIN 2 MILES OF THE SITE?

Ditches\_\_\_\_\_ Lakes\_\_\_\_\_ Pond\_\_\_\_\_

Creeks\_\_\_\_\_ Rivers X\_\_\_\_\_ Other\_\_\_\_\_

18. DISCUSS THE PROBABLE SURFACE RUNOFF PATTERNS FROM THE SITE TO SURFACE WATERS:

**Downgradient to the storm water sewer (approx. 1 mile) to the Red River of the North.**

19. PROVIDE A SIMPLIFIED SKETCH OF SURFACE RUNOFF AND SURFACE WATER FLOW SYSTEM FOR 15 DOWNSTREAM MILES (see item #36).

20. ANY POSITIVE OR CIRCUMSTANTIAL EVIDENCE OF SURFACE WATER CONTAMINATION? **No.**

Describe:

Source of information:

21. ESTIMATE THE SIZE OF THE UPGRADIENT DRAINAGE AREA FROM THE SITE: **< 1 acres.**

Source of information: **Rand McNally, 1991.**

22. DETERMINE THE AVERAGE ANNUAL STREAM FLOW OF DOWNSTREAM SURFACE WATERS

Water body: **Red River of the North** Flow: **North** cfs **574**

Water body: Flow: cfs

Water body: Flow: cfs

Source of Information **North Dakota Water Commission, 1993.**

23. IS THE SITE OR PORTIONS THEREOF LOCATED IN SURFACE WATER? **No**

24. IS THE SITE LOCATED IN A FLOODPLAIN (indicate flood frequency)? **100 year**

25. IDENTIFY AND LOCATE (see item #36) ANY SURFACE WATER RECREATION AREA WITHIN 15 DOWNSTREAM MILES OF THE SITE:

**None**

Source of Information:

26. TWO YEAR 24-HOUR RAINFALL: **3.86 inches**

27. DISCUSS GROUND WATER USAGE WITHIN FOUR MILES OF THE SITE:

**Industrial and agriculture use only.**

Source of information:

28. SUMMARIZE THE POPULATION SERVED BY GROUND WATER ON THE TABLE BELOW:

<u>Distance</u> (miles)	<u>Population</u>
On Site	0
0 - 1/4	0
1/4 - 1/2	0
1/2 - 1	0

1 - 2	0
2 - 3	0
3 - 4	0

Source of Information: **North Dakota Geological Survey.**

29. IDENTIFY AND LOCATE (see Item #36) POPULATION SERVED BY SURFACE WATER INTAKES WITHIN 15 DOWNSTREAM MILES OF THE SITE:

**Approximately 75,000. Fargo and the surrounding suburban areas are served by surface water intakes from the Red River of the North 1 mile upstream of the site and 1.5 miles upstream of probable point of entry (PPE).**

30. DESCRIBE AND LOCATE FISHERIES WITHIN 15 DOWNSTREAM MILES OF THE SITE (i.e., provide standing crop of production and acreage, etc.):

**The Red River of the North is fished and produces catfish, walleye, northern pike and sager. No production crop figures are available.**

Source of Information: **North Dakota State Game and Fish Department.**

31. DETERMINE THE DISTANCE FROM THE SITE TO THE NEAREST OF EACH OF THE FOLLOWING LAND USES

<u>Description</u>	<u>Distance</u> (miles)
Commercial/Industrial Institutional	< 1
Single Family Residential	< 1
Multi-Family Residential	Onsite
Park	< 1
Agricultural	75

Source of Information: **USGS, 1971 and Rand McNalley, 1990.**



32. SUMMARIZE THE POPULATION WITHIN A FOUR-MILE RADIUS OF THE SITE:

<u>Distance</u> (miles)	<u>Population</u>
On Site	~200
0 - 1/4	~5,000
1/4 - 1/2	~5,000
1/2 - 1	~14,000
1 - 2	~18,000
2 - 3	~15,000
3 - 4	~10,000

Source of information: **USGS, 1971 and US Census, 1980.**

OTHER REGULATORY INVOLVEMENT

33. DISCUSS ANY PERMITS:

County: **None**

State: **None**

Federal: **None**

Other: **None**

Source of information:

34. SKETCH OF SITE

Include all pertinent features, e.g., wells, storage areas, underground storage tanks, waste areas, buildings, access roads, areas of ponded water, etc. Attach additional sheets with sketches of enlarged areas, if necessary.

See Figure 3

↑

35. SURFACE WATER FEATURES

Provide a simplified sketch of surface runoff and surface water flow system for 15 downstream miles. Include all pertinent features, e.g., intakes, recreation areas, fisheries, gauging stations, etc.

See Figure(s) in PA Narrative

N  
↑

TABLE 1  
WASTE CONTAINMENT AND HAZARDOUS SUBSTANCE IDENTIFICATION

SOURCE TYPE	SIZE (Volume/Area)	ESTIMATED WASTE QUANTITY	SPECIFIC COMPOUNDS	CONTAINMENT*	SOURCES OF INFORMATION
Possible residual coal tar	unknown	unknown	PAHs, benzene, toluene, xylene	Soil/Pavement Cover	MK, 1993

\* Containment of each source from the perspective of each migration pathway (e.g., ground water pathway - non-existent, natural or synthetic liner, corroding underground storage tank; surface water - inadequate freeboard, corroding bulk tanks; air - unstablized slag piles, leaking drums, etc.)

TABLE 2  
HYDROGEOLOGIC INFORMATION

STRATA NAME/DESCRIPTION	THICKNESS (ft.)	HYDRAULIC CONDUCTIVITY (cm/sac)	TYPE OF DISCONTINUITY	SOURCE OF INFORMATION
<b>Fargo Aquifer</b>	<b>160</b>	<b>No data available.</b>	<b>Adjacent strata</b>	<b>Klausig, 1986</b>
<b>Dakota Sandstone Aquifer</b>	<b>700</b>	<b>No data available.</b>	<b>Adjacent strata</b>	<b>Klausig, 1986</b>

Discontinuity within four-miles from the site (e.g., river, strata "pinches out", etc.)

## **APPENDIX C**

### **PHOTO LOG**

Photo No.

1

Site Name:

Fargo Town Gas

Location:

Fargo, ND

CERCLIS #:

N/A



Photographer/Witness Steven Feller MK

Date 5/19/93

Time 10:15 am

Direction NW

Description Closeup view of front entrance and parking lot of Camelot Apartments

Photo No.

2



Photographer/Witness Steven Feller MK

Date 5/19/93

Time 10:15 am

Direction NW

Description Wide angle view of front entrance and parking lot at Camelot Apartments.

Page 1

Of 3



Photo No.

3



Site Name:

Fargo Town Gas

Location:

Fargo, ND

CERCLIS #:

N/A

Photographer/Witness Steven Feller

Date 5/19/93

Time 10:20 am

Direction NE

Description Closeup of west side of Camelot Apartments and parking lot showing grade towards street and municipal sewers.

Photo No.

4



Photographer/Witness Steven Feller MK

Date 5/19/93

Time 10:20 am

Direction E

Description Wide angle view of west end of Camelot Apartments.

Page 2

Of 3



Photo No.

5

Site Name:

Fargo Town Gas

Location:

Fargo, ND

CERCLIS #:



Photographer/Witness Steven Feller MK

Date 5/19/93 Time 10:30 am Direction SE

Description Closeup view of back of Camelot Apartments.

Photo No.

Page

Of

Photographer/Witness

Date Time Direction

Description